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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,807	07/17/2003	Yusuke Tsutsui	492322013300	8454

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EXAMINER	
SHERMAN, STEPHEN G	

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,807	TSUTSUI ET AL.	
	Examiner	Art Unit	
	Stephen G. Sherman	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 6-8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA (Figures 6-8 and page 1, line 10 to page 2, line 29 of the specification) in view of Okuzono (US 6,727,874).

Regarding claim 1, APA discloses a display device displaying a color image made of a plurality of color components, comprising: a plurality of pixels for each of the color components (Figure 6, item 10 and page 1, lines 10-13); and a γ-correction voltage switching circuit wherein the pixels are configured to receive display signals at different timings of a time sequence for displaying the color image depending on the color components (Figure 8) and the display signals are corrected by the corresponding γ-correction voltages prior to the reception by the pixels (Figure 6, item 24. Gamma correction is done prior to being sent to display 10, which contains the pixels.). APA fails to teach of a display device displaying a color image made of a plurality of color components comprising a γ-correction voltage switching circuit outputting y-correction voltages that are generated independently for each of the color components. Okuzono discloses a display device displaying a color image made of a plurality of color

components comprising a γ-correction voltage switching circuit outputting y-correction voltages that are generated independently for each of the color components (Column 13, lines 39-65 an Figure 6). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA and Okuzono in order to create a display device with better reproducibility of each color.

Regarding claim 7, APA discloses A γ-correction method of a display device displaying a color image made of a plurality of color components, comprising: receiving display signals corresponding to the color components (Figure 6, items 21-1 to 23-1); and writing the γ-corrected display signals for each of the color components at a timing of a time sequence for displaying the color image, the timings of the writing being different among the color components (Figure 8). APA fails to teach a display device displaying a color image made of a plurality of color components comprising of performing a γ-correction on the display signals independently for each of the color components. Okuzono discloses a display device displaying a color image made of a plurality of color components comprising of performing a γ-correction on the display signals independently for each of the color components (Column 13, lines 39-65 and Figure 6). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA and Okuzono in order to create a display device with better reproducibility of each color while maintaining small circuit size.

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Okuzono (US 6,727,874) and further in view of Bitzakidis (US 5,912,651).

Regarding claim 2, APA discloses a display device displaying a color image made of a plurality of color components, comprising: a plurality of pixels for each of the color components (Figure 6, item 10 and page 1, lines 10-13); a plurality of DA converters, each of the DA converters outputting a voltage to a predetermined number of the pixels (Figure 6, items 23-1, 23-2 and 23-3); and supplying the voltage to one of the set of the predetermined number of the pixels depending on the color component of said one pixel at a timing of a time sequence different from timings corresponding to other color components (Figure 8 and Figure 6. In Figure 6, the voltage can be seen to be applied to the pixels from the DAC converters.). APA fails to teach of a γ-correction voltage switching circuit correcting the voltages outputted to the pixels independently for each of the color components. Okuzono discloses a γ-correction voltage switching circuit correcting the voltages outputted to the pixels independently for each of the color components (Column 13, lines 39-65 and Figure 6). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA and Okuzono in order to create a display device with better reproducibility of each color. APA and Okuzono fail to teach of a switching circuit provided for each set of the predetermined number of the pixels, the switching circuit receiving the voltage corrected by the γ-correction voltage switching circuit and outputted by the corresponding DA converter. Bitzakidis discloses a switching circuit provided for each set of the predetermined number of the pixels, the switching circuit receiving the voltage corrected by the γ-correction voltage switching circuit and outputted by the corresponding DA

converter (Figure 2, the switching circuit and timing control circuit 21. The switching circuit when combined with the circuit of APA and Okuzono, would receive the voltage from the DACs and supply the voltage to the pixels and receive the timing to control the switches from the timing and control circuit to selectively output the voltages to the corresponding pixels.) Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA, Okuzono and Bitzakidis in order to create a display device with better reproducibility of each color while maintaining small circuit size.

Regarding claim 3, APA, Okuzono and Bitzakidis disclose the display device of claim 2. APA also discloses wherein the DA converter outputting the voltage as a voltage divided by a resistance string (Figure 7, the resisters between Vref(B)) and Vref(W) between a first reference voltage (Figure 7, Vref(B)) and a second reference voltage (Figure 7, Vref(W)) and the γ-correction voltage switching circuit modifies the first and second reference voltages (Page 2, lines 8-13). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA, Okuzono and Bitzakidis in order to create a display device with better reproducibility of each color while maintaining small circuit size.

Regarding claim 4, APA, Okuzono and Bitzakidis disclose the display device of claim 2. APA discloses of the display device further comprising a resister provided for each set of the predetermined number of the pixels (Figure 6, items 23-1). Bitzakidis discloses the display device further comprising the resister storing display signals corresponding to the color components and outputting the display signals in a time

sequence corresponding to the time sequence of the switching circuit (Figure 2, the row driver circuit supplies the gate lines the same as the resisters in APA and this row driver circuit receives a timing signal from the timing and control circuit 21 which corresponds to the timing signal that was supplied to the switching circuit.). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA, Okuzono and Bitzakidis in order to create a display device with better reproducibility of each color while maintaining small circuit size.

6. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA, Okuzono (US 6,727,874) and Bitzakidis (US 5,912,651) and further in view of Hong (US 2003/0006952).

Regarding claim 5, APA, Okuzono and Bitzakidis disclose the display device of claim 3. APA also discloses the display device wherein the first reference voltage comprises the output voltage of the switching element (Figure 7, Vref(B)). APA, Okuzono and Bitzakidis fail to teach of the display device wherein the γ-correction voltage switching circuit comprises a black reference voltage generating circuit outputting three different black reference voltages and a switching element outputting one of the three black reference voltages in response to a selection signal. Hong discloses the display device wherein the γ-correction voltage switching circuit comprises a black reference voltage generating circuit outputting three different black reference voltages and a switching element outputting one of the three black reference voltages in response to a selection signal (Paragraph [0038], 2nd sentence and paragraph [0047],

4th sentence. The examiner interprets that since Hong teaches of switching between a black gamma circuit that when combined with the teaching of Okuzono, the black gamma circuit would contain three different black reference voltages, one for each color, and would selectively switch between them based on the timing and selection signal.). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA, Okuzono and Bitzakidis in order to create a display device with better reproducibility of each color while maintaining small circuit size.

Regarding claim 6, APA, Okuzono and Bitzakidis disclose the display device of claim 3. APA also discloses the display device wherein the second reference voltage comprises the output voltage of the switching element (Figure 7, Vref(W)). APA, Okuzono and Bitzakidis fail to teach of the display device wherein the γ-correction voltage switching circuit comprises a white reference voltage generating circuit outputting three different white reference voltages and a switching element outputting one of the three white reference voltages in response to a selection signal. Hong discloses the display device wherein the γ-correction voltage switching circuit comprises a white reference voltage generating circuit outputting three different white reference voltages and a switching element outputting one of the three white reference voltages in response to a selection signal (Paragraph [0038], 2nd sentence and paragraph [0047], 4th sentence. The examiner interprets that since Hong teaches of switching between a white gamma circuit that when combined with the teaching of Okuzono, the white gamma circuit would contain three different white reference voltages, one for each color, and would selectively switch between them based on the timing and selection

signal.). Therefore it would have been obvious to "one of ordinary skill" in the art to combine the teachings of APA, Okuzono and Bitzakidis in order to create a display device with better reproducibility of each color while maintaining small circuit size.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SS

12 September 2005

REGINA LIANG
PRIMARY EXAMINER